

of the eastern Gulf temperatures 1 month earlier, is minor at all seasons.

Among the corollaries of this conclusion are:

(1) Since nearly all the variation in the Straits temperatures shown in the data available can be explained in terms of normal seasonal march of temperature plus the influence of contemporary conditions in areas nearby, there is no important residual variation requiring for its explanation the operation of related conditions in far distant localities.

(2) It follows that until the future sequence of air temperatures, the future number of hours the sun will shine in the Straits area, or the future temperature of the surface waters in the eastern Gulf of Mexico can be independently predicted, the future sequence of the water-surface temperatures in the Straits of Florida must remain unpredictable.

(3) Consequently, the possibility of ever showing that Caribbean sea-surface temperature variations dominate the variations in Gulf Stream water-surface temperatures in the Straits of Florida, would seem to be approximately zero.

(4) Admittedly further study may perhaps show that important influences exist upon Straits water temperature departures from normal, besides those here shown to be significant. If they do, they are, as has been pointed out, also highly correlated with one or more of the factors already found, since the combined independent influence of any further modifying factors cannot account for a larger fraction of the Straits temperature fluctuations

about seasonal normal than is approximately shown in the last line of table 2.

Therefore, in a superficial sense at least, the numerical relationships between the causes back of the Straits temperature fluctuations are so closely given by the regression equations shown in table 1 that, from the numerical values of the four related factors here discussed, we can compute the Straits average surface temperature for any month almost as accurately as it can be found by actually averaging all the available temperature readings made during that month.

Let it be here repeated, that the temperature variation in the Caribbean Sea is not one of the four factors found in this study to be quantitatively significant in influencing Straits of Florida surface temperature variations from seasonal normal.

It appears, therefore, that predictable water-surface temperature anomalies are not transmitted by any simple, stream-like flow of water from one place to another for any great distance in the regions at the origins of the Gulf Stream. There can be little hope, therefore, of establishing the fact of such a transmission of temperature variation along any other part of the Gulf Stream or along any extratropical route other than the Gulf Stream, since it must be admitted by all that the region out of which the Gulf Stream arises is the most favorable region in which to expect comparatively undisturbed transmission of temperature-variation-cargo from torrid to temperate latitudes.

## BIBLIOGRAPHY

C. FITZHUGH TALMAN, *in charge of Library*

### RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

Rohrbeck, Walther

Die Schätzungsgrundlagen bei Hagelschäden, von Walther Rohrbeck und Dr. Otto Schlumberger. Berlin: P. Parey, 1933. 36 p. xv pl. on 8 l. 21½ cm. "Schriftennachweis": p. 34-36.

[Smith, W. A., ed.]

A world list of scientific periodicals published in the years 1900-1933. 2d ed. London, Oxford university press: H. Milford, 1934. xiv, 779 p. 27 cm. An alphabetical list of over 36,000 titles, giving the full title, the abbreviated title, the symbols for the libraries filing the periodical, and their holdings. Edited by W. A. Smith. Preface signed: P. Chalmers Mitchell. "Library symbols": p. xiii-xiv. "International congresses": p. 769-[780].

Vallaux, Camille

Géographie générale des mers, avec 114 figures et dessins de l'auteur en texte, 16 planches de photogravures et 4 cartes hors texte. Paris: F. Alcan, 1933. vii, 795 p. illus., plates, fold. maps, diagrs. 25 cm.

## SOLAR OBSERVATIONS

### SOLAR RADIATION MEASUREMENTS DURING NOVEMBER 1934

By IRVING F. HAND, Assistant in Solar Radiation Investigations

For a description of instruments employed and their exposures, the reader is referred to the January 1932 REVIEW, page 26.

Table 1 shows that solar radiation intensities averaged above normal for November at Washington and slightly below at Madison and Lincoln.

Table 2 shows a deficiency in the amount of total solar and sky radiation received on a horizontal surface at all stations for which normals have been computed.

It is interesting to note from table 3 the rapid increase in water vapor toward noon on both November 2 and 5. On both of these days clouds formed shortly after noon. On the other hand, the 9th and 15th show in general diminished water-vapor content with approach of high sun. The 17th shows little dust and low water content of the atmosphere.

Polarization measurements obtained on 5 days at Washington give a mean of 59 percent with a maximum of 68 percent on the 15th. At Madison measurements made on 4 days give a mean of 53 percent with a maximum of 57 percent on the 6th. All these readings are below the November normals.